

May 10, 1965

STATINTL



MONTHLY PROGRESS REPORT NO 2

Contract

Period - Month of April, 1965

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1. PROGRESS ACCOMPLISHED

1.1 Various grades and types of zinc oxides and other photo conductive materials are continually being obtained and their applicability for the project evaluated.

1.1.1 To date, eight samples of zinc oxides have been obtained

[redacted] These materials have been studied in our test apparatus. It has been found that the acicular zinc oxides align in an electric-field whereas the non-acicular zinc oxides do not align. The acicular zinc oxides found to align were [redacted] XX-2 and XX-602. We now have a large supply of these materials on hand and are dispersing them in a ball-mill. After they have been dispersed, they will be centrifuged in order to remove the larger crystals and agglomerates. The desired particle size should be retained in the supernatant liquid.

1.1.2 Since it has been established that the acicular zinc oxide will align in a field, these materials will be evaluated as to their change in transmission when exposed to various intensities of ultraviolet radiation.

1.2 In addition to the zinc oxides other photoconductive compounds and sensitizers are being studies.

1.3 There are three approaches that are presently being investigated for this project.

1.3.1 Photo-ionic - in which dipoles and photo-ions are present in the dipolar suspension and in which the photo-ions influence the orientation of the dipoles.

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1.3.2 Photo-dipolar - in which the dipoles are photo-dipoles whose conductivity varies in accordance with the intensity of the light illuminating them.

1.3.3 Field - enhancement tandem cell - in which the dipolar suspension is in one layer and the photo-sensitive substances are in a second layer, the two layers being separated by a transparent panel. An electric field is applied across both layers.

2. DIFFICULTIES ENCOUNTERED

2.1 The only difficulties encountered were those of an operational nature. New power lines had to be installed for the U.V. source and for the need of extra electrical outlets. Quartz that had been ordered has been delayed in delivery and components for the instrumentation necessary for testing has just been received after a long delay.

3. FUTURE WORK

3.1 Studies that have been initiated will be continued.

3.2 Alternate materials and methods to produce the required photoconductive effect will be investigated.

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